Status of Level 2 Software

AIRS Science Team Meeting

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Level 2 Software Status - Last Meeting

- **100 Level Rapid Transmittance Algorithm was incorporated into the Prototype 6 software.**
  - April 95 version of Strow IR RTA.
  - Aug 96 version of Rosenkranz MW RTA.
  - Retrieval modules were modified to use the new RTA routines
- **New version of two layer cloudy data sets were generated.**
  - Both 100 levels and 66 levels.
  - UARS climatology was used (T above 50 mb, and ozone).
  - New MW RTA was used in the radiance simulation.
  - Non-unit emissivity in night cases.

Level 2 Software Status - New

- **Training data sets for the new data sets were generated.**
  - Both 100 levels and 66 levels.
- **Current Simulation Data (** xi.jpl.nasa.gov:/export/source/DATA/rad_database/1996/Jan/01/ **)**
  - Orbit-04: Two Layer Cloudy Test data sets
  - Orbit-26: New 66 level data set
  - Orbit-36: Obsolete, 100 level data set with “thick” surface layers
  - Orbit-37: 100 level data with correct surface layers
- **Software patch to 100 Level RTA was made to take into account thin layers at the surface.**
  - pobs(nsurf-1) +5. < psurf < pobs(nsurf)+5.
  - The effect is minimal in IR due to nonlinearity of Plank function.
  - The software was fixed and the radiances were regenerated.
  - Retrieval statistics improved with this patch.

Level 2 Software Status - New (Continued)

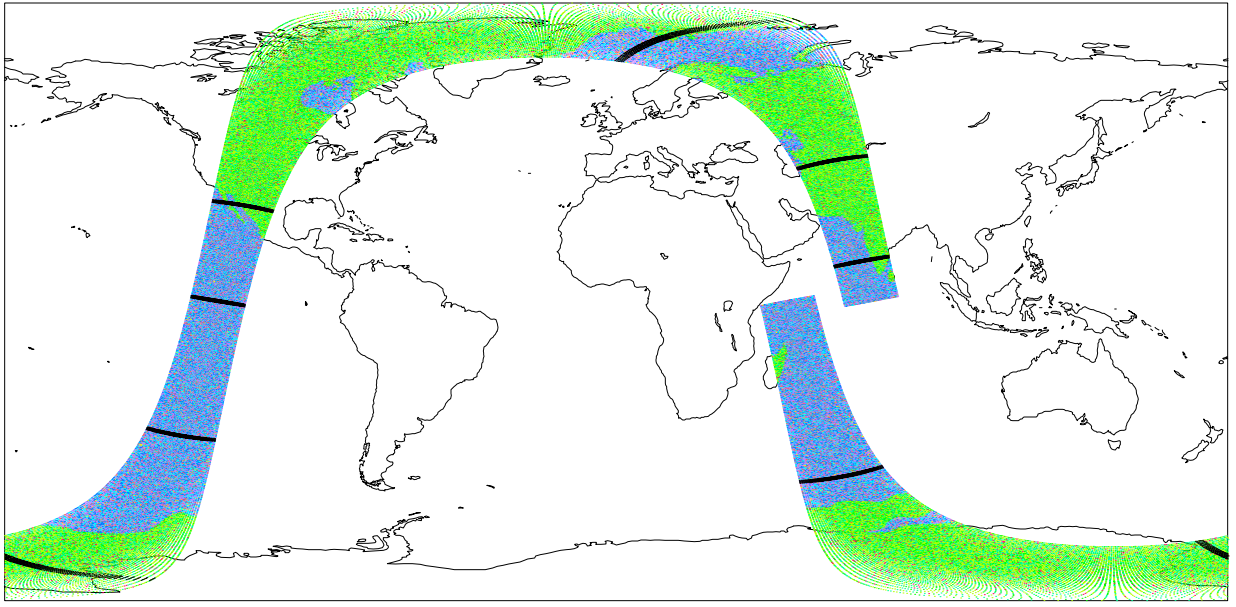
- **MIT retrieval improved slightly from 66 level version**
  - 100 level MW coefficients based on the TIGR set is available.
  - Retrieval uses same RTA as radiance simulation.
- **GSFC retrieval degraded slightly from 66 level RTA**
  - Software glitch was found in night cases with non-unit emissivity.
  - Degradation from the original 66 level to the new 66 is larger.
- **No NOAA regression coefficients.**
  - Regression coefficients based on the new training sets.
- **A software glitch was found in initial (NOAA) retrieval**
  - The surface retrieval was not handled correctly.
  - The suggested patch needs to be examined before merging into the prototype software.

Global Simulation

AIRS

- **Two orbits for November 5, 1997**
  - /export/source/airs6/DATA/rad_database/1996/Nov/05/Orbit-01 and Orbit-02 on xi.jpl.nasa.gov
- **One Training set (one orbit) for November 6, 1997**
  - Same orbit pattern as the first orbit of Nov 5.
- **Benchmark regions were chosen.**
  - Polar, northern and southern mid-latitude, and tropical regions.
  - Day and Night sides of orbit.
  - each region has two AMSU scan lines.
  - 4 * 2 * 2 = 16 AMSU scan lines.
- **Need NOAA regression coefficients.**
- **Zenith Angle Correction**
  - Conventional angle correction requires too much CPU.
  - Chris Barnet suggests to use one angle for 9 AIRS footprint within an AMSU footprint temporarily.

50 GHz MW emissivity



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